UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/476,463	12/30/1999	TZU-CHIEH CHANG	1999-021	7883

7590 03/26/2004	**EXAMINER**
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AT & T CORP	
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ART UNIT	PAPER NUMBER
2132	

MIDDLETOWN, NJ 07748

DATE MAILED: 03/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	09/476,463	CHANG ET AL.
	Examiner	Art Unit
	Jung W Kim	2132

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 December 2003*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-37* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-35 and 37* is/are rejected.

7)☒ Claim(s) *36* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1.   Claims 1-37 have been examined.

Response to Amendment

2.   Examiner withdraws the objection to the title as the amended title is more clearly

indicative of the claimed invention.

Claim Objections

3.   Claim 35 is objected to because of the following informalities: the claim is not

grammatical. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

5.   Claim 33 is rejected under 35 U.S.C. 112, second paragraph, as being

incomplete for omitting essential structural cooperative relationships of elements, such

omission amounting to a gap between the necessary structural connections. See

MPEP § 2172.01. The omitted structural cooperative relationships are: the limitation of

claim 33 claims that the selected portion is based on information content; however,

"information content" is not adequately defined in the parent claim. To further

examination, the limitation will be interpreted as the selected portion being based on

information content in the data stream.

Claim Rejections - 35 USC § 102

6.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7.   Claims 1-7, 9-17, 19-22, 24, 27-35, and 37 are rejected under 35 U.S.C. 102(e)

as being anticipated by Barbir U.S. Patent No. 6,122,379 (hereinafter Barbir). As per

claim 1, Barbir discloses a method for protecting a data transmission using a plurality of

standard code books where each of the code books encodes a standard portion of the

data transmission (see Barbir, col. 6, lines 53-65, especially lines 47-48 and 55-57;

Figure 4, Reference Nos. 70 and 100). The adaptive stage shown in Figure 4, which

updates the static model at random intervals, enables simultaneous data compression

and encryption using the code books generated at random intervals by the adaptive

stage and the learning stage of the method. This method comprises:

        a.   scrambling at least one of codes among the code books or a

correspondence between the code books and portions of the data transmission

(see Barbir, Figure 7, Reference Nos. 425, 430, 435, and related text; Figure 4,

Reference Nos. 70 and 100 and related text);   .

b.   encoding data based on scrambled at least one of codes or code books

(see Barbir, Figure 4, Reference No. 92 and related text);

c.   transmitting encoded data (see Barbir, Figure 4, Reference No. 94).

The aforementioned covers claim 1.

8.   As per claim 2, Barbir discloses a method for protecting a data transmission as

outlined above in the claim 1 rejection under 35 U.S.C. 102(e). In addition, the

scrambling step scrambles the standard codes so that a decoder of the standard codes

cannot successfully decode the encoded data (see Barbir, col. 8, lines 7-8).

9.   As per claim 3, Barbir discloses a method for protecting a data transmission as

outlined above in the claim 1 rejection under 35 U.S.C. 102(e). In addition, the

scrambling step is performed based on scrambling information, the scrambling

information being transmitted with the encoded data (see Barbir, col. 8, lines 11-22 and

lines 36-44; Figure 4, Reference Nos. 40, 70, 96, and 100).

10.   As per claim 4, Barbir discloses a method for protecting a data transmission as

outlined above in the claim 1 rejection under 35 U.S.C. 102(e). In addition, the standard

code books are Huffman code books (see Barbir, col. 7, line 65).

11.   As per claims 5 and 21, Barbir discloses a method for protecting a data

transmission using one or more standard codes (see Barbir, col. 6, lines 53-65),

comprising:

    a.   scrambling every one of the standard codes appearing in the data into

    other standard codes according to scrambling information that is based on one or

    more of a fixed table or an algorithm (see Barbir, Figure 7, Reference Nos. 425,

    430, 435, and related text; Figure 4, Reference Nos. 70 and 100, and related

    text);

    b.   encoding data based on scrambled standard codes (see Barbir, Figure 4,

    Reference No. 92 and related text);

    c.   transmitting encoded data (see Barbir, Figure 4, Reference No. 94 and

    related text).

The aforementioned cover claims 5 and 21.

12.   As per claim 6, Barbir discloses a method for protecting a data transmission as

outlined above in the claim 5 rejection under 35 U.S.C. 102(e). In addition, the

algorithm is initialized with an initial value (see Barbir, col. 5, lines 26-30; Figure 4,

Reference Nos. 10, 20, and 30).

13.   As per claim 7, Barbir discloses a method for protecting a data transmission as

outlined above in the claim 5 rejection under 35 U.S.C. 102(e). In addition, one or more

of the fixed tables, an identification of the algorithm or the initial value is either agreed

upon between a transmitter and one or more intended receivers prior to transmission of

the encoded data or transmitted with the encoded data (see Barbir, col. 5, lines 26-34;

Figure 4, Reference Nos. 10, 20, and 30).

14.   As per claim 9, it is a method claim corresponding to claims 3 and 7 and it does

not teach or define above the information claimed in claims 3 and 7. Therefore, claim 9

is rejected as being anticipated by Barbir for the same reasons set forth in the rejections

of claims 3 and 7.

15.   As per claim 10, Barbir discloses a method for protecting a data transmission as

outlined above in the claim 5 rejection under 35 U.S.C. 102(e). In addition, the standard

codes are Huffman code books (see Barbir, col. 7, line 65).

16.   As per claims 11-17 and 19-20, they are apparatus claims corresponding to

claims 1-7 and 9-10, and they do not teach or define above the information claimed in

claims 1-7 and 9-10. Therefore, claims 11-17 and 19-20 are rejected as being

anticipated by Barbir for the same reasons set forth in the rejections of claims 1-7 and

9-10.

17.   As per claim 22, Barbir discloses a method for protecting a data transmission as

outlined above in the claim 1 rejection under 35 U.S.C. 102(e). In addition, the

scrambling is performed on a selected portion of information in the data transmission

(see Barbir, col. 8, lines 11-22 and lines 36-44; Figure 4, Reference Nos. 40, 70, 96,

100).

18.   As per claim 24, Barbir discloses a method for protecting a data transmission as

outlined above in the claim 22 rejection under 35 U.S.C. 102(e). In addition, the portion

is selected based on content of the data transmission (see Barbir, col. 8, lines 11-22

and lines 36-44; Figure 6, Reference No. 325).

19.   As per claim 27, Barbir discloses a method for protecting a data transmission as

outlined above in the claim 1 rejection under 35 U.S.C. 102(e). In addition, the data

transmission is divided into sub-streams, and each sub-stream employs a different one

of the standard code books (see Barbir, Figure 8 and col. 10, lines 5-32).

20.   As per claim 28, Barbir discloses a method for protecting a data transmission as

outlined above in the claim 27 rejection under 35 U.S.C. 102(e). In addition, information

in the data transmission is divided into the sub-streams based on type of information,

frequency band of the information, and/or time intervals (see Barbir, Figure 6,

Reference Nos. 325, 330, 335; Figure 8, and col. 10, lines 5-32).

21.   As per claim 29, Barbir discloses a method comprising the steps of:

        a.   accepting a stream of data (see Barbir, Figure 4, Reference No. 1);

b.   developing from the data a stream of codewords, where each codeword

belongs to a code book (see Barbir, Figure 4, Reference Nos. 80 and 92 and

related text), where in connection with a selected portion of the data, each

codeword is developed in accordance with process A, or process B, where

      i.   from strings of data bits, process A creates codewords consisting of

one or more concatenated bits $b_0, ... b_j$, where j is an integer that may

differ from codeword to codeword, pursuant to a standard first code book,

followed by replacing the created codewords with another created

codeword consisting of one or more concatenated bits $a_0, ... a_k$, that is

different from the created codebook and belongs to a second code book

(see Barbir, Figure 4, Reference No. 70 and 100 and related text), the

another created codeword being created by other than setting

          (1)   j to k,

          (2) $a_0, ... a_{j-1}$ to $b_0, ... b_{j-1}$, and

          (3) a_j either to b_j or an inverse thereof,

      ii.   from strings of data bits, process B creating codewords pursuant to

a non-standard code book the created codewords being converted

codewords (see Barbir, col. 8, lines 11-54);

c.   in connection with other than the selected portion of the developed

codewords, if any, each codeword, consisting of one or more concatenated bits

$b_0, ... b_j$, where j is an integer that may differ from codeword to codeword, is

created pursuant to the standard first code book (see Barbir, col. 7, lines 3-21

and 26-29; Figure 4, Reference No. 30); and

d.   transmitting the codewords created in connection with the selected

portion, and in connection with the other than the selected portion, if any (see

Barbir, Figure 4, Reference No. 94).

22.   As per claim 30, Barbir discloses a method as outlined above in the claim 29

rejection under 35 U.S.C. 102(e). In addition, the second code book is other than the

standard code book (see Barbir, col. 8, lines 40-44).

23.   As per claim 31, Barbir discloses a method as outlined above in the claim 29

rejection under 35 U.S.C. 102(e). In addition, the limitation of the second code book

being the standard code book claimed in claim 31 effectively defines process A as an

identity function that maps the codewords created from a standard code book to

codewords created from the same standard code book. As such, the code words are

not scrambled. This process is covered by any standard coding technique using code

books as taught by Barbir (see Barbir, col. 6, lines 10-32; col. 7, lines 64-67).

24.   As per claim 32, Barbir discloses a method as outlined above in the claim 29

rejection under 35 U.S.C. 102(e). In addition, the selected portion comprises sub-

portions, and each of the sub-portions develops codewords pursuant to in accordance

with process A, or process B that employs its own second code book (see Barbir,

Figures 4 and 8 and related text).

25.   As per claim 33, Barbir discloses a method as outlined above in the claim 29

rejection under 35 U.S.C. 102(e). In addition, the selected portion is based on

information content (see Barbir, col. 8, lines 11-22 and lines 36-44; Figure 6, Reference

No. 325).

26.   As per claim 34, Barbir discloses a method as outlined above in the claim 29

rejection under 35 U.S.C. 102(e). In addition, the selected portion is time interval based

(see Barbir, Figure 6, Reference No. 330).

27.   As per claim 35, Barbir discloses a method for protecting data transmission as

outlined above in the claim 27 rejection under 35 U.S.C. 102(e). In addition, the

selected portion is based on a spectrum of information contained in the data stream

(see Barbir, col. 8, lines 11-22 and lines 36-44; Figure 6, Reference No. 325).

28.   As per claim 37, Barbir discloses a method as outlined above in the claim 29

rejection under 35 U.S.C. 102(e). In addition, the second code book is selected from a

set of preselected code books, and the selection of the second code book is not fixed

(see Barbir, col. 8, lines 40-44; Figure 4, Reference Nos. 70 and 100 and related text).

Claim Rejections - 35 USC § 103

29.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

30.   Claims 8 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Barbir in view of Schneier Applied Cryptography 2nd Edition (hereinafter Schneier). As

per claim 8, Barbir discloses a method that protects a data transmission as outlined

above in the claim 7 rejection under 35 U.S.C. 102(e). Barbir does not expressly

disclose encrypting the initializing value (seed key) prior to transmission. However,

encrypting keys for the purpose of secure key exchange is a conventional practice.

Schneier discloses several well known protocols to implement secure seed key

exchange (see Schneier, page 47-52) between a sender and a receiver. Therefore, it

would be obvious to one of ordinary skill in the art at the time the invention was made to

encrypt the initial value prior to transmission. The motivation for encrypting the initial

value would ensure the privacy of the seed for the scrambling method, and hence the

scrambled data transmission.

31.   As per claim 18, it is an apparatus claim corresponding to claims 8 and 17 and it

does not teach or define above the information claimed in claims 8 and 17. Therefore,

claim 18 is rejected under Barbir in view of Schneier for the same reasons set forth in the rejections of claims 8 and 17.

32.   Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Barbir in view of Katta et al. U.S. Patent No. 5,377,266 (hereinafter Katta). As per claim 23, Barbir discloses a method for protecting a data transmission as outlined above in the claim 22 rejection under 35 U.S.C. 102(e). However, Barbir is silent on the matter of the type of data being compressed. Katta teaches a compression/encryption apparatus wherein selected portions of a data transmission constituting video and audio information are isolated to be processed using code books dependant on a transmission signal (see Katta, col. 5, lines 50-56; Figures 4-8, Reference No. 12). It would be obvious to one of ordinary skill in the art at the time the invention was made for scrambling to be performed on a selected portion of video and audio information in the data transmission. Motivation for such an implementation would enable the code books used for scrambling to be particular to the distinct portions of the data transmission and thus enabling better compression results. Finally, the portion that is not selected for scrambling is a portion of the video and/or audio that is desired to be decoded with code books (see Barbir, Figure 4 as modified by Katta, Figures 4-8, Reference No. 12). The aforementioned covers claim 23.

33.   Claims 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barbir in view of Heimbach U.S. Patent No. 4,638,357 (hereinafter Heimbach). As

per claims 25 and 26, Barbir discloses a method for protecting a data transmission as outlined above in the claim 22 rejection under 35 U.S.C. 102(e). Barbir is silent on the matter of the selected portion being distributed in time or being a selected frequency band, wherein non-selected portions are not scrambled. However, in the general art of transmission scrambling, scrambling only a portion of a transmission selected based on time intervals or frequency bands is a common feature to minimize the cost of scrambling. As an example, Heimbach teaches these features commonly expressed in the prior art and in an audio scrambler device (see Heimbach, col. 1, lines 9-43; col. 2, lines 11-13). It would be obvious to one of ordinary skill in the art at the time the invention was made for the selected portion to be scrambled be contingent on a time interval or a frequency band. Motivation for such a combination enables the method to efficiently scramble the transmission so that the transmission is effectively secure. The aforementioned cover claims 25 and 26.

Allowable Subject Matter

34.   Claim 36 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

35.   Applicant's arguments, see page 11, first paragraph, filed December 29, 2003, with respect to the rejection(s) of claim(s) 1 and 11 under 35 U.S.C. 102(b) have been

fully considered and are persuasive. Therefore, the rejections have been withdrawn.

However, upon further consideration, a new ground(s) of rejection is made in view of

Barbir U.S. Patent No. 6,122,379.

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Jung W Kim whose telephone number is (703) 305-

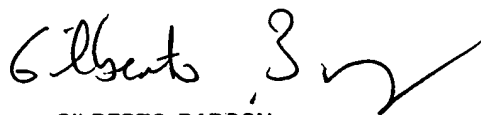8289. The examiner can normally be reached on M-F 9:00-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Gilberto Barron can be reached on (703) 305-1830. The fax phone number

for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the

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Business Center (EBC) at 866-217-9197 (toll-free).

Jung W Kim
Examiner
Art Unit 2132

Jk
March 15, 2004

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